

CLAIMS

What is claimed is:

1. A method of automatically processing a series of input images without operator's intervention, in automatically processing each of the input images, the method
5 comprising:
 providing processing parameters;
 automatically analyzing, classifying, and enhancing the input image without operator's intervention; and
 outputting at least one enhanced image.
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2. The method of claim 1, further comprising outputting a plurality of enhanced images with different file types without re-analyzing, re-classifying, and re-enhancing the input image.
- 15 3. The method of claim 1, further comprising outputting a plurality of enhanced images with different file sizes without re-analyzing, re-classifying, and re-enhancing the input image.
4. The method of claim 1, wherein the input images are processed in real time on-
20 the-fly.

5. The method of claim 1, wherein the input images are processed in a batch mode.

6. The method of claim 1, wherein the input images are processed in an embedded software.

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7. The method of claim 1, wherein the input images are processed in an embedded hardware.

8. The method of claim 1, wherein the input images are processed in an embedded
10 firmware.

9. The method of claim 1, wherein the step of automatically analyzing, classifying, and enhancing the input image includes applying an individual image enhancement independently to each of the input images.

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10. The method of claim 1, further comprising pre-processing the input image before analyzing, classifying, and enhancing the input image.

11. The method of claim 1, further comprising resizing the enhanced image.

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12. The method of claim 1, further comprising compressing the enhanced image.

13. The method of claim 11, further comprising compressing the enhanced image before outputting the resized image.

5 14. The method of claim 13, further comprising automatically applying at least one filter in a pre-compression, post-resizing enhancement.

15. The method of claim 13, further comprising post-processing the enhanced image before compressing the enhanced image.

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16. The method of claim 1, wherein the processing parameters define the number of the output images.

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17. The method of claim 11, wherein the processing parameters define resizing parameters.

18. The method of claim 12, wherein the processing parameters define compression parameters.

20 19. The method of claim 13, wherein the processing parameters define compression parameters.

20. The method of claim 1, further comprising viewing the enhanced image before outputting.

5 21. The method of claim 1, wherein the input images are processed in a server computer of a network system, an output destination for the output image is coupled to the network system.

22. The method of claim 21, wherein the network system is Internet, whereby the
10 system is capable of being applied in an automated on-the-fly environment where images are sent to the server computer via the Internet whereupon the images are processed and transmitted to the output destination.

23. A method of automatically processing a series of input images without operator's
15 intervention, in automatically processing each of the input images, the method comprising:

providing processing parameters;

automatically analyzing and classifying each of the input images without
operator's intervention;

20 automatically compressing the image; and
outputting at least one compressed image.

24. The method of claim 23, further comprising outputting a plurality of compressed images with different file types without re-analyzing and re-classifying each of the images.

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25. The method of claim 23, further comprising outputting a plurality of compressed images with different file sizes without re-analyzing and re-classifying the input image.

26. The method of claim 23, wherein the input images are processed in real time on-
10 the-fly.

27. The method of claim 23, wherein the input images are processed in a batch mode.

28. The method of claim 23, wherein the input images are processed in an embedded
15 software.

29. The method of claim 23, wherein the input images are processed in an embedded hardware.

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30. The method of claim 23, wherein the input images are processed in an embedded

firmware.

31. The method of claim 23, wherein the step of automatically analyzing,
classifying, and enhancing the input image includes applying an individual image
5 enhancement independently to each of the input images.

32. The method of claim 23, further comprising pre-processing the input image.

33. The method of claim 23, further comprising resizing the classified image before
10 compressing the image.

34. The method of claim 33, further comprising automatically applying at least one
filter in a pre-compression, post-resizing enhancement.

35. The method of claim 34, further comprising post-processing the resized image
15 before compressing the image.

36. The method of claim 23, wherein the processing parameters define the number
of the output images.

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37. The method of claim 33, wherein the processing parameters define resizing

parameters.

38. The method of claim 23, wherein the processing parameters define compression parameters.

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39. The method of claim 23, further comprising viewing the compressed image before outputting.

40. The method of claim 23, wherein the input images are processed in a server
10 computer of a network system, an output destination for the output image is coupled to the network system.

41. The method of claim 40, wherein the network system is Internet, whereby the
system is capable of being applied in an automated on-the-fly environment where
15 images are sent to the server computer via the Internet whereupon the images are processed and transmitted to the output destination.

42. An image processing system for automatically processing a series of input
images without operator's intervention, comprising:

20 an image analysis module for automatically analyzing each of the input images;
an image classification module for automatically classifying the analyzed image;

an image enhancement module for automatically enhancing the classified image based on classification; and

an output module for outputting at least one enhanced image.

5 43. The system of claim 42, wherein the output module outputs a plurality of enhanced images with different file types without re-analyzing, re-classifying, and re-enhancing the input image.

10 44. The system of claim 42, wherein the output module outputs a plurality of enhanced images with different file sizes without re-analyzing, re-classifying, and re-enhancing the input image.

15 45. The system of claim 42, wherein the image analysis module, the image classification module, the image enhancement module, and the output module process the input image in real time on-the-fly.

46. The system of claim 42, wherein the image analysis module, the image classification module, the image enhancement module, and the output module process the input image in a batch mode.

20 47. The system of claim 42, wherein the image analysis module, the image

classification module, the image enhancement module, and the output module process the input image in an embedded software.

48. The system of claim 42, wherein the image analysis module, the image
5 classification module, the image enhancement module, and the output module process the input image in an embedded hardware.

49. The system of claim 42, wherein the image analysis module, the image
classification module, the image enhancement module, and the output module process
10 the input image in an embedded firmware.

50. The system of claim 42, wherein the image enhancement module applies an individual image enhancement independently to each of the input images.

51. The system of claim 42, further comprising a pre-processor for pre-processing
15 the image before analyzing, classifying, and enhancing the input image.

52. The system of claim 42, further comprising an image resizer for resizing the enhanced image.

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53. The system of claim 42, further comprising an image compression module for

compressing the enhanced image before outputting the enhanced image.

54. The system of claim 52, further comprising an image compression module for
5 compressing the enhanced image before outputting the resized image.

55. The system of claim 54, further comprising a pre-compression post-resizing
image enhancement module for automatically applying at least one filter before
compressing the enhanced image.

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56. The system of claim 54, further comprising a post-processor for post-processing
the enhanced image before compressing the enhanced image.

57. The system of claim 42, further comprising an input module for inputting the
15 input image and a set of parameters, the input module is capable of inputting multiple
system, user defined naming conventions for the output image as the set of parameters.

58. The system of claim 57, wherein the parameters define the number of the output
images.

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59. The system of claim 57, wherein the parameters define resizing parameters.

60. The system of claim 57, wherein the parameters define compression parameters.

61. The system of claim 42, further comprising a viewer for viewing the enhanced
5 image before outputting.

62. The system of claim 42, wherein the input images are processed in a server
computer of a network system, an output destination for the output image is coupled to
the network system.

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63. The system of claim 62, wherein the network system is Internet, whereby the
system is capable of being applied in an automated on-the-fly environment where
images are sent to the server computer via the Internet whereupon the images are
processed and transmitted to the output destination.

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64. The system of claim 42, wherein the image analysis module analyzes the image
based on an image histogram.

65. The system of claim 42, wherein the image classification module classifies the
20 image based on a Weighted Means range, a Weighted Standard Deviation range, and a
Halve Value Position range of an image luminosity histogram.

66. The system of claim 42, wherein the image enhancement module includes a brightness filter.

5 67. The system of claim 42, wherein the image enhancement module includes a contrast filter.

68. The system of claim 42, wherein the image enhancement module includes a saturation filter.

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69. The system of claim 42, wherein the image enhancement module includes a curve filter.

70. The system of claim 42, wherein the image enhancement module includes an
15 unsharp mask filter.

71. The system of claim 53, wherein the image compression module includes a JPEG compression.

20 72. The system of claim 52, wherein the image resizer resizes the image to a thumbnail size.

80. The system of claim 56, wherein the image post-processor includes an unsharp mask filter.

5 81. The system of claim 55, wherein the pre-compression post-resizing image enhancement module includes an unsharp mask filter.

82. An image processing system for automatically processing a series of input images without operator's intervention, comprising:

10 an image analysis module for automatically analyzing each of the input images;
an image classification module for automatically classifying the analyzed image;
an image compression module for automatically compressing the classified image based on classification; and
an output module for outputting at least one compressed image.

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83. The system of claim 82, wherein the output module outputs a plurality of enhanced images with different file types without re-analyzing and re-classifying the input image.

20 84. The system of claim 82, wherein the output module outputs a plurality of enhanced images with different file sizes without re-analyzing and re-classifying the

input image.

85. The system of claim 82, wherein the image analysis module, the image
classification module, the image compression module, and the output module process
5 the input image in real time on-the-fly.

86. The system of claim 82, wherein the image analysis module, the image
classification module, the image compression module, and the output module process
the input image in a batch mode.

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87. The system of claim 82, wherein the image analysis module, the image
classification module, the image compression module, and the output module process
the input image in an embedded software.

15 88. The system of claim 82, wherein the image analysis module, the image
classification module, the image compression module, and the output module process
the input image in an embedded hardware.

89. The system of claim 82, wherein the image analysis module, the image
20 classification module, the image compression module, and the output module process
the input image in an embedded firmware.

90. The system of claim 82, wherein the image analysis module, the image classification module, the image enhancement module, and the output module apply an individual image enhancement independently to each of the input images.

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91. The system of claim 82, further comprising a pre-processor for pre-processing the input image before analyzing and classifying the input image.

10 92. The system of claim 82, further comprising an image resizer for resizing the enhanced image before outputting the compressed image.

93. The system of claim 91, further comprising a pre-compression post-resizing image enhancement module for automatically applying at least one filter before
15 compressing the enhanced image.

94. The system of claim 92, further comprising a post-processor for post-processing the input image before compressing the enhanced image.

20 95. The system of claim 82, further comprising an input module for inputting the input image and a set of parameters, the input module is capable of inputting multiple

system, user defined naming conventions for output images as the set of parameters.

96. The system of claim 95, wherein the parameters define the number of the output images.

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97. The system of claim 95, wherein the parameters define resizing parameters.

98. The system of claim 95, wherein the parameters define compression parameters.

10 99. The system of claim 82, further comprising a viewer for viewing the compressed image before outputting.

100. The method of claim 82, wherein the input images are processed in a server computer of a network system, an output destination for the output image is coupled to
15 the network system.

101. The method of claim 100, wherein the network system is Internet, whereby the system is capable of being applied in an automated on-the-fly environment where images are sent to the server computer via the Internet whereupon the images are
20 processed and transmitted to the output destination.

102. The system of claim 82, wherein the image analysis module analyzes the input image based on an image histogram.

103. The system of claim 82, wherein the image classification module classifies the
5 input image based on a Weighted Means range, a Weighted Standard Deviation range, and a Halve Value Position range of an image luminosity histogram.

104. The system of claim 82, wherein the image compression module includes a JPEG compression.

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105. The system of claim 92, wherein the image resizer resizes the image to a thumbnail size.

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106. The system of claim 91, wherein the image pre-processor includes a brightness filter.

107. The system of claim 91, wherein the image pre-processor includes a contrast filter.

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108. The system of claim 91, wherein the image pre-processor includes a saturation filter.

109. The system of claim 91, wherein the image pre-processor includes an unsharp mask filter.

5 110. The system of claim 94, wherein the image post-processor includes a brightness filter.

111. The system of claim 94, wherein the image post-processor includes a contrast filter.

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112. The system of claim 94, wherein the image post-processor includes a saturation filter.

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113. The system of claim 94, wherein the image post-processor includes an unsharp mask filter.

114. The system of claim 93, wherein the pre-compression post-resizing image enhancement module includes an unsharp mask filter.

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115. A computer program storage medium readable by a computing system and encoding a computer program of instructions for executing a computer process of

automatically processing a series of input images without operator's intervention, in
automatically processing each of the input images, the computer process comprising:

providing processing parameters;

automatically analyzing, classifying, and enhancing the input image without

5 operator's intervention; and

outputting at least one enhanced image.

116. A computer data signal embodied in a carrier wave readable by a computing
system and encoding a computer program of instructions for executing a computer

10 process of automatically processing a series of input images without operator's
intervention, in automatically processing each of the input images, the computer process
comprising:

providing processing parameters;

automatically analyzing, classifying, and enhancing the input image without

15 operator's intervention; and

outputting at least one enhanced image.

117. A computer program storage medium readable by a computing system and
encoding a computer program of instructions for executing a computer process of

20 automatically processing a series of input images without operator's intervention, in
automatically processing each of the input images, the computer process comprising:

providing processing parameters;

automatically analyzing and classifying the input image without operator's intervention;

automatically compressing the image; and

5 outputting at least one compressed image.

118. A computer data signal embodied in a carrier wave readable by a computing system and encoding a computer program of instructions for executing a computer process of automatically processing a series of input images without operator's

10 intervention, in automatically processing each of the input images, the computer process comprising:

providing processing parameters;

automatically analyzing and classifying the input image without operator's intervention;

15 automatically compressing the image; and

outputting at least one compressed image.

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